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ABSTRACT

Most advanced second language (L2) learners find continued vocabulary growth to be one of the most difficult areas in second language learning, and vocabulary acquisition has not received little attention by researchers. As a result, no unified theory of L2 vocabulary acquisition exists, although the literature contains ample advice on how to teach vocabulary. Presently, the most promising approach to constructing a theory of L2 vocabulary learning appears to come from the field of cognitive psycholinguistics. The approach posits that new words are stored in the brain through associate networks that link a word to other semantically related words and concepts, and relate it syntactically to appropriate structures. Visual imagery is also very important in the association process. It appears that humans associate one or more images with each word designating a concrete object, concept, or abstract idea. Therefore, L2 vocabulary acquisition is much more complex than it appears on the surface, involving many different faculties. A 17-item bibliography is included. (MSE)

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THE ACQUISITION OF SECOND LANGUAGE VOCABULARY

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Introduction

Although much has been written on teaching second language vocabulary, surprisingly little is available on the process of vocabulary acquisition. Meara (1980, p. 240) concludes his survey article on vocabulary acquisition by saying: "... the study of vocabulary acquisition is an area where the sort of research work that has been carried out is far from satisfactory, and where a large number of questions still remain to be answered." Unfortunately, this situation has not changed much to the better since Meara's statement. No unifying theory of second language vocabulary acquisition has yet been proposed, although several divergent attempts at explaining vocabulary acquisition exist. It is deplorable that vocabulary acquisition has received so little attention from researchers, especially in view of the fact that developing an extensive vocabulary presents a major challenge to advanced second language learners. As Krashen (1980, p. 440) puts it: "Second language acquirers ... carry dictionaries with them, not grammar books." Obviously, second language vocabulary acquisition merits further thorough investigation.

The present paper, then, is an attempt to draw together some of the theoretical approaches to explaining L2 vocabulary acquisition. Vocabulary learning strategies and teaching techniques are also discussed to the extent that they shed some light on the acquisition process.

No conscious distinction between "acquisition" and "learning" is made in this paper, although one could think of "learning" as the process and "acquisition" as the end result. Various stages of vocabulary knowledge in a second language are possible. They range from partially understanding a word passively to fully understanding and actively using a word (Palmberg, 1987). In this paper the term "second language" is used in its broad sense and is meant to include the term "foreign language."

Theoretical Approaches

In a recent article Krashen (1989) posits that his Input Hypothesis can account for L1 as well as L2 vocabulary acquisition. According to the Input Hypothesis language is acquired sub-consciously from comprehensible input provided by the language environment. The learner's focus is on the message, not on the form. Another term for this process is "incidental learning." Krashen claims that "vocabulary is most efficiently attained by comprehensible input in the form of reading" (p. 440). He cites numerous research studies which prove that children as well as adults make substantial gains in vocabulary acquisition through free reading. Although he contends that conscious vocabulary learning can have some effects, he feels that the incidental, sub-conscious acquisition of vocabulary has better long-term results and is the only way to arrive at an extensive vocabulary. Krashen concludes his article by

emphatically recommending pleasure reading over any kind of drill exercises.

In the same article Krashen also discusses two other hypotheses which have been used to explain vocabulary acquisition. The Skill-Building Hypothesis claims that language is acquired through conscious learning of individual rules and items which gradually become automatic through drills and exercises. Vocabulary, then, is acquired by deliberate study of individual words, by analyzing parts of words, and by doing exercises. The Output Hypothesis posits that people learn language by producing it. Rules and items are learned and tried out in production and adjusted according to the feedback received. Communicative success confirms a hypothesis made about a rule, while communicative failure, or correction, disconfirms it. Krashen admits that both hypotheses can explain conscious learning, but he points out that neither one of them can account for the tremendous amount of sub-conscious acquisition that takes place, for example, during free reading. According to Krashen the Input Hypothesis, on the other hand, can easily accommodate for this phenomenon.

The evidence Krashen cites supporting the value of free reading in extensive vocabulary acquisition is undeniable. Yet the Input Hypothesis alone is obviously not sufficient to account for second language vocabulary acquisition. Learners must possess a

basic vocabulary before they can do any free reading. Thus reading cannot be used in the early stages of second language learning. In the case of foreign language classroom learning, students are usually not willing to engage in free reading until they are at a fairly advanced stage, and even then it is more often a chore than pleasure for them. Foreign language reading materials are often also not easily available. Thus free reading might be an option in some second language learning situations, but not in others.

Learning vocabulary from reading obviously depends on learning new words from context. While the method of guessing the meaning of new words from context is widely accepted by L1 and L2 researchers and teachers, there are some voices who caution against over-reliance on this strategy. Kelly (1990) feels that in foreign language instruction guessing cannot be substituted for systematic vocabulary learning. He conducted a study designed to determine students' accuracy in guessing unknown foreign language vocabulary from context and found: "The results of this random sampling confirm what has been frequent experience when reading in a FL, namely that unless the context is very constrained, which is a relatively rare occurrence, or unless there is a relationship with a known word identifiable on the basis of form and supported by context, there is little chance of guessing the correct meaning" (p. 203). Guessing from context may work in L1 and some L2 learning situations simply because the

same words are encountered over and over again in different contexts. The very limited amount of input available in the foreign language classroom, on the other hand, makes guessing from non-contrived contexts a less desirable learning strategy.

Krashen's article only looks at the acquisition of vocabulary through reading. No doubt, in certain second language learning situations (i.e., in the case that the target language is spoken outside the classroom) other powerful channels of vocabulary acquisition also exist, such as face-to-face communication and the media. Krashen does not deal with these situations, but his Input Hypothesis could certainly account for them as well.

The greatest flaw in Krashen's theory lies in its superficiality. The Input Hypothesis tells us that learners acquire vocabulary through appropriate input, but it does not deal at all with the internal processes of acquisition. Psycholinguistics, in particular learning theory, seems to be the area presently holding most promise for arriving at an understanding of the mental processes involved in vocabulary acquisition. The basic idea here is that humans learn by association. Schema theory holds that "knowledge is organized in schemata or networks and that new learning occurs either by adding to or by adjusting already existing knowledge structures" (Hague, 1987, p. 219). One might add that concrete mental images exist in the brain not only for concrete objects, but for abstract concepts as well.

Hague outlines a Knowledge and Access Hypothesis, based on schema theory, which accounts for vocabulary acquisition. According to this hypothesis "new words are best learned in semantically related groups that are somehow related to words and knowledge that the reader already knows" (p. 219). The various meanings of words become accessible through multiple exposure and practice. Hague suggests that L2 vocabulary should be taught "in semantic networks and to the point of automatic access" (p. 220).

Along lines similar to Hague's, Beheydt (1987) claims that acquiring vocabulary is a process of semantization:

> Learning vocabulary is not merely learning a fixed meaning for a specific form, it is much more acquiring a process of meaning. As the learner is faced with different usages of the same word, he is obliged over and over to change his interpretation, until he succeeds in giving the word the same range of meanings as the native speaker. For the process of vocabulary learning this implies that it is essential that the learner be provided with a number of concrete representative usages of each word as a basis for the correct semantization of a word (p. 61).

Thus fitting a new word into the already existing semantic network is central to Hague's and Beheydt's approaches to explaining second language vocabulary acquisition.

Yet another researcher, Lado (1990), hypothesizes that humans learn words as undifferentiated lexical items first. "As the number of lexemes increases to meet the communicative, expressive, emotional, and esthetic needs of the learner, the memory load becomes heavy and triggers the development of systems to store and retrieve them as needed and to combine them in

phrases and sentences. These systems develop according to the cognitive capabilities and skill potential of humans" (p. 96). Lado's hypothesis is similar to Hague's and Beheydt's in that it acknowledges the establishment of a semantic network between words in the brain.

The question of whether or not the second language lexicon is stored in the brain separately from the first language lexicon is also of interest to a theory of SL vocabulary acquisition. Meara (1980) reports on a number of research studies involving word recall experiments. The majority of the studies seem to indicate that there is an interdependence between the L1 and L2 vocabularies. They seem to support the view that "words in a second language are indeed integrated in some way with words in a first language to form a complex whole lexicon" (p. 229). These findings would also support the hypothesis claiming that words are stored in the brain in intricately related semantic (and one should also add syntactic) networks.

The ease or difficulty of L2 word learning must be an important component of any theory accounting for second language vocabulary acquisition. Laufer (1990) gives an excellent summary of the factors that can interfere with learnability of a foreign word. For Laufer knowledge of a word is "taken to be the knowledge of its form, structure, syntactic behavior, meaning (referential, affective, pragmatic), and its relation with other words" (p.

150). According to Laufer the following factors contribute to the difficulties with learning certain foreign words: "difficult pronounceability; similarity of form between the word and other words; deceptive morphological structure; different syntactic patterning in L1; differences in lexical gridding between L1 and L2 (one-to-many correspondence, partial overlap in meaning); multiplicity of meaning and metaphors/idioms non-existent in L1; lexical voids; connotations non-existent in L1; differences in the pragmatic meaning of near synonyms and of L1 translation equivalents; partial synonymy; and apparent rulelessness of collocation" (p. 150). To this list one might add what Kerim-Zade and Pavlov (1989) have termed the "semantico-functional" variability of words. This concept refers to those words that can take on different grammatical functions, and at the same time different meanings. The word "frighten" in the following two sentences exemplifies this idea: "John frightened his friend. The horse did not frighten at all" (p. 383).

Learning Strategies

As mentioned previously, one commonly used strategy for learning new L2 words from reading is through guessing from context. This strategy can most profitably be used by the more advanced second language learner. Nation and Coady (1988) propose a guessing from context strategy that consists of the following five steps:

1. Finding the part of speech of the unknown word.
2. Looking at the immediate context of the unknown word and simplifying this context if necessary.
3. Looking at the wider context of the unknown word. This means looking at the relationship between the clause containing the unknown word and surrounding clauses and sentences.
4. Guessing the meaning of the unknown word.
5. Checking that the guess is correct (pp. 104-105).

This strategy presupposes that the learner has sufficient command of vocabulary, grammar, reading skills, and background knowledge to be able to comprehend the basic meaning of the text.

Walker (1983) conducted a study of the word identification strategies used by Spanish-speaking learners of English (subjects were 17 to 24 years old) when finding unknown words in reading passages. She identified ten strategies which are listed here in descending order of frequency: pronouncing, skipping, regressing (re-reading a passage already read), syntax, guessing, dictionary, graphemics, morphemics, intuitive, and ignoring.

Another strategy that learners employ sub-consciously is that they establish a mental connection between new words and semantically related words that have been learned previously. Meara (1980) reports on a number of experiments that focus on eliciting word associations. This technique involves the presentation of a stimulus word to which the subject is to respond with the first word that comes to his or her mind. Many associations elicited follow a stereotypical pattern in the majority of the population. Thus the response to "white" is

usually "black," to "woman" it is "man," etc. (Meara, 1980, p. 234).

A more controversial strategy, yet one that yielded positive results in several experimental studies, is the so-called "key word" method (Meara, 1980, pp. 225-226). This strategy involves in the first stage the association of an L2 word with a phonetically similar L1 word (called key word), and in the second stage the association of the key word with the L1 translation of the L2 word by means of a striking visual image. For example, the Spanish word "caballo might be linked to the English word cab, which in its turn would be linked to horse via the image of a horse drawing a cab" (Meara, 1980, p. 225). As strange as the keyword strategy might appear, it has proven to be surprisingly successful. Nation (1990) reports on research which arrived at the following conclusions: "The keyword technique helps the learning of foreign vocabulary and is superior to other techniques, such as rote repetition, placing vocabulary in a meaningful sentence, and using pictures or synonyms. The use of the keyword technique is not restricted to concrete nouns but can be used with verbs, abstract nouns, and adjectives" (p. 168). The idea behind all mnemonic learning strategies is "that the more ... words are analyzed and are enriched by associations or images, the longer they will stay in the memory" (Nation, 1990, p. 167). Nation also points out that the analysis of words into affixes and roots is an effective learning strategy.

Teaching Techniques

Nation distinguishes between direct and indirect vocabulary learning. Direct vocabulary learning involves doing exercises and activities, such as word-building, learning words in lists, or vocabulary games. Indirect vocabulary learning occurs when the learner's attention is focused on the message, rather than on individual words. It is Nation's belief that language teachers should facilitate both direct and indirect SL vocabulary learning (p. 3).

A first step in a long-range SL vocabulary acquisition plan is deciding which and how many words should be taught over a given period of time. It is obvious that high-frequency words should be taught first. For teaching English as a second language, for example, several lists of basic vocabulary exist, such as the "Basic English Word List" developed by Richards or the "General Service List" compiled by West (Carter and McCarthy, 1988, pp. 1-11). Second language textbooks usually adhere to such high-frequency word lists. If a textbook is adopted for a SL course, the problem of selecting appropriate vocabulary is thus taken care of, but if a teacher develops her own course she must give careful consideration to this area. Beheydt (1987, p. 63) suggests that the 1,000 most frequent SL words should be taught in a first-level course, and that the rate of introducing new words should be more intense in the beginning than later on. As

far as vocabulary practice is concerned, a formula of 4+1+1+1 is suggested, which means that a new word should be used in four different contexts in the lesson in which it is introduced and should occur at least once in each of three subsequent lessons.

Levine and Reves (1990) conducted a study designed to find out whether some methods of SL vocabulary presentation are more effective than others. The teaching techniques used were: word and its translation (visual presentation, in print); word with picture; word in context (auditory presentation, recorded); word and its definition (visual presentation); word and its translation (auditory presentation); word in context (visual presentation); three-fold computer presentation (word and its definition, word presented in analogy, word in context). The results of their study indicate that for short-term as well as long-term retention of vocabulary visual presentation is more effective than auditory presentation. In this study word with picture presentation was the most effective method. Nation (1982, p. 28) points out that pictures and word translations can have complementary functions. He cites research which indicates that superior results were obtained by using the simultaneous presentation of both a written and spoken translation of a foreign word accompanied by a corresponding picture. Nation also claims that, at least initially, teaching words in context is not necessarily superior to teaching them in isolation (p. 24). Research has shown that list learning is effective, and large

numbers of word pairs can be learned in short periods of time. Furthermore, presentation of the word meaning in the mother tongue is superior to presentation in the foreign language alone (Nation, 1982, p. 21). Presentation of new words prior to their appearance in a reading text has also been found to be effective. Mnemonics and word analysis, already discussed in the previous section of this paper, are techniques that also enhance retention of vocabulary. And even the somewhat monotonous task of copying foreign language words (in written form) has been shown to aid in memorization of vocabulary (Thomas and Dieter, 1987). In order for words to be permanently anchored in memory it is essential that they be used over and over again in a variety of contexts, including contexts that reveal their syntactic use and morphological structure (Beheydt, 1987). In the early stages of second language learning the total physical response method can be used profitably. Using this method students respond to verbal cues by performing specific actions, rather than by answering verbally.

Beheydt (1987) stresses that for long-term vocabulary retention to take place it is necessary for the learner to elaborate on the word by, for example, imagining it or relating it to other words or concepts that are already known. Hague (1987) proposes semantic mapping and semantic feature analysis as effective vocabulary teaching techniques. Semantic mapping involves the creation of a diagram which relates the target word to categories

of related words. Semantic feature analysis organizes words hierarchically and illuminates semantic relationships between words. For example, vehicles of transportation could be listed in a matrix along with features that apply to some of these vehicles. The matrix is filled in by using (+) or (-) signs to indicate the presence or absence of a particular feature.

Many different SL vocabulary teaching techniques are in existence today, and all of them are useful to some extent. In fact, it seems to be best to combine a variety of techniques. The important factor is that the learner should elaborate on a new word by a variety of means. In this way the word can enter long-term memory and is available for recall.

Conclusion

Continued vocabulary growth is felt to be the most difficult area by most advanced second language learners. Yet second language vocabulary acquisition has not received the amount of theoretical attention that other areas of language learning have enjoyed. The result is that no unified theory of SL vocabulary acquisition exists, although there is ample advice on how to teach vocabulary. Presently, the most promising approach to constructing a theory of SL vocabulary acquisition seems to come from the field of cognitive psycho-linguistics. The basic idea here is that new words are stored in the brain via associative

networks which link a word to other semantically related words and concepts and relate it syntactically to appropriate structures. Visual imagery is also very important in the association process. It appears that humans associate one or more images with each word designating a concrete object, a concept, or an abstract idea.

Second language vocabulary acquisition is much more complex than it might appear on the surface. To summarize with Richards (1976) word knowledge involves many different faculties:

> Knowing a word means knowing the degree of probability of encountering that word in speech or print. For many words we also know the sort of words most likely to be found associated with the word.
>
> Knowing a word implies knowing the limitations imposed on the use of the word according to variations of function and situation.
>
> Knowing a word means knowing the syntactic behavior associated with the word.
>
> Knowing a word entails knowledge of the underlying form of a word and the derivations that can be made from it.
>
> Knowing a word entails knowledge of the network of associations between that word and other words in the language.
>
> Knowing a word means knowing the semantic value of a word.
>
> Knowing a word means knowing many of the different meanings associated with a word (p. 83).

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